

## CLAIMS

1. A method of monitoring transplant rejection in a subject comprising
  - a) taking as a baseline value the level of mRNA expression corresponding to or protein encoded by at least one gene, in a specific tissue sample of a transplanted subject who is known not to develop rejection;
  - b) detecting a level of mRNA expression corresponding to or protein encoded by the at least one gene identified in a) in an tissue sample of the same tissue type as in a) obtained from a patient post-transplantation; and
  - c) comparing the first value with the second value, wherein a first value lower or higher than the second value predicts that the transplanted subject is at risk of developing rejection, wherein the gene is as defined in Table 1, 2 or 3.
2. A method of monitoring transplant rejection in a subject comprising
  - a) detecting a level of mRNA expression corresponding to or protein encoded by at least one gene, in an tissue sample obtained from the donor at the day of transplantation;
  - b) detecting a level of mRNA expression corresponding to or protein encoded by the at least one gene identified in a) in an tissue sample obtained from a patient post-transplantation,
  - c) comparing the first value with the second value, wherein a first value lower or higher than the second value predicts that the transplanted subject is at risk of developing rejection; wherein the gene is as defined in Table 1, 2 or 3.
3. A method for monitoring transplant rejection in a subject at risk thereof comprising
  - a) obtaining a pre-administration sample from a transplanted subject prior to administration of a rejection inhibiting agent,
  - b) detecting the level of expression of mRNA corresponding to or protein encoded by the at least one gene in the pre-administration sample,
  - c) obtaining one or more post-administration samples from the transplanted patient,
  - d) detecting the level of expression of mRNA corresponding to or protein encoded by the at least one gene in the post-administration sample or samples,
  - e) comparing the level of expression of mRNA or protein encoded by the at least one gene in the pre-administration sample with the level of expression of mRNA or protein encoded by the at least one gene in the post-administration sample or samples, and
  - f) adjusting the agent accordingly,

wherein the gene is as defined in Table 1, 2, or 3.

4. A method for preventing, inhibiting, reducing or treating transplant rejection in a subject in need of such treatment comprising administering to the subject a compound that modulates the synthesis, expression or activity of one or more genes or gene products as identified in Table 1, 2, or 3, so that at least one symptom of rejection is ameliorated.
5. A method for identifying agents for use in the prevention, inhibition, reduction or treatment of transplant rejection comprising monitoring the level of mRNA expression of one or more genes or gene products as identified in Table 1, 2, or 3.
6. A method according to any preceding claim, wherein the transplanted subject is a kidney transplanted subject.
7. A method according to any preceding claim, wherein the level of expression of the gene expression is assessed by detecting the presence of a protein corresponding to the gene expression product.
8. A method according to claim 7, wherein the presence of the protein is detected using a reagent which specifically binds to the protein.
9. A method according to any of claims 1 to 6, wherein the level of mRNA expression of one or more genes is detected by techniques selected from the group consisting of Northern blot analysis, reverse transcription PCR and real time quantitative PCR.
10. A method according to any of claims 1 to 6 wherein the level of mRNA expression of a set of genes is detected.
11. Use of a gene or an expression product of a gene as listed in Table 1, 2 or 3 as a biomarker for transplant rejection.
12. Use of a compound which modulates the synthesis, expression or activity of one or more genes as identified in Table 1, 2 or 3, or an expression product thereof, for the preparation of a medicament for prevention or treatment of transplant rejection in a subject.
13. A method or use according to any preceding claim, wherein the transplant rejection is chronic transplant rejection and the gene is as defined in Table 2.
14. A method or use according to any preceding claim, wherein the transplant rejection is acute transplant rejection and the gene is indolamine deoxygenase.
15. A method according to any of claims 1 to 3, wherein the tissue sample is a body fluid.